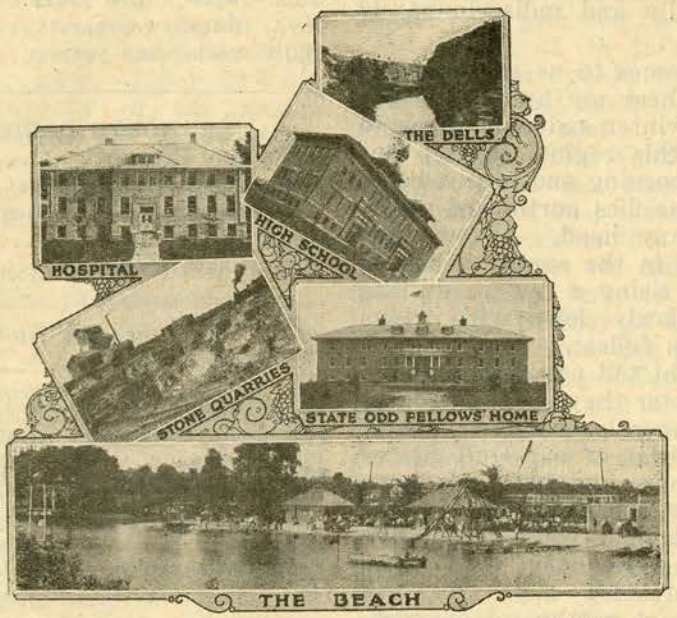
Volume X.

Number V
Price 5 cents

NORTH AND SOUTH DAKOTA HORTICULTURE

MAY 1937



SCENES AT DELL RAPIDS, SOUTH DAKOTA
—Courtesy of the Dell Rapids Tribune.

THE BOBOLINK

O. A. Stevens

This bird has received much acclaim in American verse, Bryant's "Robert of Lincoln" being one of the most widely known poems. The sprightly song of the bird hovering in midair is a striking performance which has an unfailing appeal. "Bob-o'-link, Bob-o-link, spink, spank, spink, chee, chee, chee," is Bryant's translation of the song. Quite different is the prosaic one quoted by Thomas Nuttall as used by the boys in New England about 1830: "Bob-o-link, Bob-o-link, Tom Denny, Tom Denny—Come pay me the two and six pence you've owed me more than a year and a half ago!.—tshe, tshe, tshe." We readily admit the impossibility of translating bird song into human speech and music, but most of our attempts are suggestive to some extent. Alexander Wilson suggested that this song would be simulated if single high notes were struck rapidly and indiscriminately on the piano.

The bobolink's song comes to us at an opportune season. I usually hear my first one about May 20 when our late winter suddenly turns to summer as we say in this region. I step out of the house some fine morning and hear a bobolink singing merrily as he flies northward several hundred feet above my head. A few days later we shall find them in the sunny meadows, the gaily colored males rising a few yards into the air and dropping slowly down with wings a-quiver and voice at its fullest.

What a tale they might tell us, if they could, of their travels! The winter they spent in southern Brazil or in the recently war-torn Chaco, in a climate similar to that of our Gulf States where our brown thrashers and bluebirds have remained. How did the bobolinks feel, loafing through the southern summer while the native South American birds were busy with their nesting? Did the shortening days of early March cause them to start northward, wandering deliberately along the eastern slope of the Andes? What did they see of Central America or Yucatan before their flight across the Gulf? It is mid-April when they reach southern United States, a month earlier than their appearance in our latitude.

The summer range of the bobolink is chiefly the area between latitudes 40° and 45°, east of the Missouri River. In our longitude it extends to about 50° north and westward to the mountains, into central Alberta and Saskatchewan. In some parts of northern Utah and Nevada, eastern Oregon and southern British Columbia the birds occur and are believed to have appeared there in rather recent time. The nests are placed on the ground, well hidden in the grass and are hard to find because of a cunning habit of the female. She will not ordinarily fly to or from the nest, but runs through the grass for some distance. The eggs are about seven-eighths of an inch in length, dull white, quite heavily marked with brown and lavender.

The song of the bobolink is reserved for the

(Continued on page 60)

VOLUME X. MAY, 1937 NUMBER V.

Entered as second class matter at the Post Office at Sioux Falls, South Dakota, under the act of August 24, 1912. Original Office of entry Pierre, South Dakota.

Membership in the South Dakota State Horticultural Society is one dollar per year; fifty cents of this amount is for the subscription to "North and South Dakota Horticulture." The subscription rate for affiliated organizations is twenty-five cents per member, per year.

Published monthly at Sioux Falls, South Dakota, by the North and South Dakota State Horticultural Societies. Address all communications to W. A. Simmons, Secretary, Horicultural Office, Court House, Sioux Falls, South Dakota.

TABLE OF CONTENTS Page

NORTH DAKOTA STATE HORTICULTURAL SOCIETY NEWS LETTER

A. F. Yeager, Secretary, Fargo, N. D.

A great deal of publicity has recently been given to the growing of vegetables in water cultures. This method has now been given the fancy name of hydroponics. Personally, I feel that the subject has been given much more publicity than it deserves. Doubtless plants can be raised without soil and produce heavy yields, provided a very skilled operator does the feeding. However, I do not believe that the average person would have success, and would be much surprised if the average water culture plant was anywhere near as good as the average soil grown plant. Of course, light must be supplied in any case. The situation might be likened to one taking a picture. The ordinary person is likely to get the best results with the simplest kind of a camera. If he attempts to use a $500 camera with special adjustments for light, special adjustments for depth, of focus, color filters, slides and leveling devices, the chances are 100:1 that he will get no picture worthy of the name. This same intricate camera in the hands of an expert operator could produce better pictures than the cheap box camera, but it requires the unusual skill that the expert possesses to give such results.

A MacMillan book which should be interesting to some of our members, though perhaps not worth much as a money maker, is THE GARDEN OF GOURDS, by H. L. Bailey. Price $2.50.

In an extension circular of the Michigan State College, I note the following method for eradicating ants in the lawn: Either 2 ounces of calcium cyanide in ½ gallon of water, or 1 ounce of sodium cyanide in 1 gallon water, poured into the ant nest. This treatment will kill both adults and brood. From past experience, this method sounds like a good one.

One of the old bulletins which should still be of interest is Farmers' Bulletin No. 1123, entitled GROWING AND PLANTING HARDWOOD SEEDLINGS ON THE FARM.

A recent letter asks the question whether corn land or summer fallowed land would be best for potatoes this year. In my opinion, the summer fallowed land would be the better because it is more likely to have a supply of moisture. After all, the moisture supply has been the biggest factor in the production of a crop in these late years.

Plum and chokecherry trees should be given consideration in planning a shelterbelt. Not only will they provide protection, but they supply food for birds.

The question is asked as to whether grapefruits grow in bunches as do grapes. While grapefruit does not grow in exactly that kind of a bunch, when they are young they do present something of the appearance of a bunch of grapes. Hence, that is supposed to be the reason why the name was applied to them.

Mrs. Olmstead of Kempton says: "Here is how I get early potatoes: I take shallow boxes, put in a layer of dirt, then the potatoes as close together as I can. Cover with dirt, and keep in a warm place. When it is time to transplant, I lift them out carefully and plant them. They will be two or three weeks earlier than the others.

A correspondent asked what to do with an extremely rich garden plot, one perhaps too rich for tomatoes. We suggest vine crops such as squash or melons, or corn. In normal years if it is not too hot even tomatoes would likely make a good crop provided they were watered sufficiently. Much of the failure of our tomato crop last year was due to extremely high temperatures which destroyed the blossoms even though irrigation was used.

A member from Gordon, Nebraska, calls attention to the fact that what we speak of as cedars are not real cedars. The real cedars include such trees as the Cedar of Lebanon from Syria. The ones we commonly speak of as cedars are really junipers.

Mr. O. R. Beckley of Bordulac, North Dakota, has been experimenting a number of years and has developed a satisfactory small plant house. He says that he will be glad to furnish Horticultural Society members who are interested information gained from his experience and estimates of cost.

Farmers' Bulletin 1591 is entitled TRANSPLANTING TREES AND SHRUBS. It gives methods for moving large trees as well as small ones.

Many persons have asked whether we have apricot trees for sale. Our apricot breeding has not reached that stage as yet. It is quite probable however that the apricots introduced by Dr. Hansen of the South Dakota Experiment Station may be hardy here since they are seedlings from good apricots raised in the colder part of Russia. Incidentally, a book has been received from Russia which gives an account of the work of Mitchurin, the great Russian fruit breeder. In this book are pictured apricot varieties developed by him for climatic conditions

(Continued on page 56)

PRESIDENT'S CORNER

F. X. Wallner
Sioux Falls, S. D.

On March 1st there were 3430 carloads of apples in the Yakima Valley in Washington. The first week in March 302 carloads were shipped, but only 8 carloads of potatoes and 6 of onions were shipped out.

The Washington state legislature appropriated $62,500 for a state horticultural laboratory, the horticultural committee having no trouble convincing the legislators that this sum was needed for the interests of the fruit and vegetable growers of the state. In the Market Growers Journal of February 15th there is a tomato news article by Mr. M. Hardin of Geary, Okla. It is an account of the behavior of 65 varieties in 1936, in the driest and hottest season on record. Fifteen varieties are under numbers of the early maturing determinate type, 9 of the Bison variety, 90 to 98% of the blossoms setting fruit. Here are some figures for the comparative test; Bison 90%, Rutgers 9%, Glovel 7%, Penn State 80%, Scarlet Dawn 18%, Fargo Yellow Pear 94%, Golden Conserve 94%, Bountiful 96%, Grotters Red Globe 16%, Yeager's No. 215-P2 90%, Marglobe 3%, Ventura 10%, Bonny Best 26%, Optimus 2%, Trophy 2%, Pinkheart 78%, Oxhart 3%, Scarlet Topper 68% and Burpee's New Globe 10%. This tallies pretty closely with my records, only that I did not have any of Burpee's New Globe ripen, even under water and the Scarlet Topper did not do as well.

A few years ago another similar report was issued by Mr. Hardin and we thot he was giving these types too much credit, so far south where large type tomatoes are grown. Mr. Hardin is a member of our Society.

We saved all of No. 216 for seed, so will have many plants extra of this variety for those wishing to try it, also many of the other new varieties, including Golden Bison, the most wonderful, almost seedless tomato and of course, the older varieties also. A big Add in the packer says: "Attention, Onion Growers. If you do not want Secretary Wallace and his Board of Control to tell you if you can ship any onions, or sell any onions by the sack, by the truck or carload or in the field, then express your disapproval by not signing the agreement when submitted to you." Over 90% of the growers have signed up against government interference in the onion growing industry. It is not so many years ago that the spines and thorns were eliminated from the egg plant; now comes the good news that the spineless Okra is ready for distribution to the farmers and gardeners. Most varieties of Okra bear pods which have spines that cause severe stinging and discomfort, when picking. The pods of the new Okra are spineless and the plant, almost spineless. Both branches of the Maine legislature passed a bill taxing state grown potatoes, to raise a large fund for Newspaper, Magazine and Radio advertising thruout the nation and the world, to increase the consumption of Maine's fine quality potatoes. The high quality Ohio potatoes of the Red River Valley are disappearing from the picture because the eastern and western growers are more energetic and progressive and no doubt have more favorable weather and moisture, for potatoes. Iowa's State Department of Agriculture has ruled that red tagged certified seed potatoes of North Dakota, or any other state, no matter how good, may not be sold unless the official blue tag is attached to each bag. A planter has complete confidence in planting a bag of blue tagged seed potatoes and the practice of planting the small, inferior potatoes of unknown stock, is out of date. Six carloads of certified Katahdin potatoes from Maine and Michigan were planted this spring in Louisiana, because of the wonderful showing and yield obtained by several 4-H club boys that planted Katahdin's last year. They yielded 25 bushels per acre more than Triumphs, planted and dug at the same time, altho they are later and when allowed to mature, yielded more. "Mineralized" vegetables are being shipped from Florida, grown on a 4000 acre tract specially treated with minerals. The main crops are cabbage and tomatoes but other vegetable crops are also on the list mineralized for the good of mankind.

Last fall we called attention to the poor quality and undersize of U. S. No. 1 potatoes being shipped into South Dakota. On March 15th the U. S. Department of Agriculture seized several carloads from Wisconsin, Michigan, Maine and Florida that were 30% undersize and defective. U. S. Commercial were found much below that grade while U. S. No. 2 were little better than culls. The Food and Drug Commission has found that receivers paint out incorrect grade statements, remove misleading tags, or resack into plain bags. Flagrant or repeated offenses may result in confiscation of carloads and the citation of shipper or handler for criminal prosecution. But the dumping of cull fruits and vegetables into North and South Dakota goes on because there is no state law protecting the consumer. Southern plants will be on the market before this warning is read by the planter and the label "frost Proof" will attract, while the local grown plants find little sale. Usually the onion plants are covered with thrips so small,

(Continued on page 56)

RESPONSE OF PLANTS TO HORMONE-LIKE SUBSTANCES

Dr. P. W. Zimmerman
(Condensed from N. Y. Hort. Soc. Report)

The growth and development of plants and animals are known to be regulated by special chemical compounds called Hormones. These are made in endocrine glands of animals and are dispatched to distant places where they exert a controlling influence on growth and regulate certain functions. Our temperament and very thinking are conditioned by the physiological balance of hormones in the system at any particular time. During fright, the heart beats faster due to over secretion of a special hormone by a gland at the base of the brain. This chemical messenger excites the heart which in turn may aid the victim to take care of emergencies. A heart stimulant has been isolated from the suprarenal gland and called adrenalin. This is only one of many known animal hormones and we can look forward to the time when practically every function of the body will be definitely associated with a known chemical compound. In fact medical doctors are already using a variety of hormones to treat for certain ailments of their patients. Similarities between living matter of the plant and animal organism are frequently mentioned. Both have living protoplasm and during respiration both oxidize food material, consuming oxygen and giving off carbon dioxide. But now we come to that striking similarity—both produce natural hormones which excite organs into action, regulate metabolism, and control growth and development.

There must be a good reason why the poinsettia flowers at Christmas time instead of the long days of summer, why chrysanthemums flower in autumn; why still other prefer the long days of summer. It appears that the regulators are in some way affected by relative length of day and night and that there is considerable variation among species and varieties. The problem appears not to be one of food manufacture or all plants would flower during the long days of summer when light conditions are best for making food. The logical assumption seems to be that flowering is controlled by special hormones which can be made during long or short days according to the inherited nature of the species. This view is given more standing now that we known something about growth promoting substances which actually induce organs (roots) wherever applied to the plant. We now know more than 30 chemical compounds which may be said to modify or regulate growth and development of the plant. Some of these are known to occur naturally in the plant but most of them must be looked upon as hormone-like and may in time be found in the plant. At present they are synthetic preparations which are made in our laboratories or manufactured on a commercial scale by chemical companies. Like animal hormones these growth promoting substances induce varied responses in plants. If applied along one side of a young stem, bending occurs within an hour or two due to local acceleration of growth. When applied on one side for a distance of several inches the stem curls around sometimes making a complete circle, Applied to the upper side of a leaf, downward bending soon follows; an application to the lower side makes the leaf grow upward. If a strong solution is used the substance travels for some distance thru the tissues, gets out into leaves causing a systemic response. For some unkown reason the upper side of leaves is more sensitive than the lower side and leaves move downward nearly paralleling the stem. This type of response occurs when a water solution of the substance is added to the soil. The second noticeable response occuring in 24 to 48 hours is swelling and whitening of the tissue due to cell division and cell enlargemnet. This continues for several days or until the third and most important response is evident—the production of adventitious roots. The stems and leaves become literraly covered with roots. Any part of the plant can be made to produce new roots, except possibly flower petals. Fruits (beans etc.) flower stems, ovaries, leaves, and other roots can be made to form new roots. Even the top of a plant can be made to grow a generous root system. It is this root inducing capacity of the hormone-like substances which makes them so important from a practical standpoint. Practically any species of plants can be propagated from cuttings with the aid of the substances. To induce responses as described for the aerial parts of the plant the chemicals are mixed with vaseline or lanolin and applied with a stick or a glass rod. For cuttings a water solution is used. The most important root inducing substances known are napthalene acetic acid and indolebutyric acid. (These substances can be supplied together with directions by Merck & Co. Inc., Rahway, N. J.). When dissolved in water these are effective in low concentrations. Tho species vary in sensitivity, most of them respond when treated with a range of concentrations around 1 part of the substance to 40000 parts of water. Some of the most stubborn varieties need as much as 1 to 5000. Roses are among the most susceptible being induced to root with a 1 to 100,000 or less. The cuttings are made in the usual way and then the basal ends are placed in an inch or more of the solution for 6 to 48 hours depending on the species and the concentration of the substance. After this period

(Continued on page 59)

SECRETARY'S CORNER

W. A. Simmons

Our summer meeting will be held at Dell Rapids on June 19th and 20th, and our good friends there are making extensive preparations to entertain us.

The plan, at present is to have a brief business meeting in the morning of the first day, of the Executive Board, then to repair to the park, for a picnic dinner. The afternoon will be devoted to a program of talks and papers, with the banquet in the evening. The second day, (Sunday) will be devoted to the tour, perhaps to Brookings with a picnic dinner, then probably to Colton and Sioux Falls. Agreements are pending, with the weather bureau man, for a couple of those justly famous rare days of June, rare not raw, and we hope as many as possible will be present to enjoy, what is sure to be a good time. We are not offering this as a mouse trap such as Emerson referred to, manufacturing which, the public was apt to wear grooves in the terrain leading to your gate, but as an unusual one that did work, once. A quart milk bottle stood all winter in an outer shed and on retrieving it, a few days ago, a dead mouse was found in it. As the bottle was too small to allow of putting the cat in it, and as the mouse was far too dead, or "high" to serve as food for any non-British cat, the remains were gingerly shaken out and cremated in the furnace.

A former good neighbor and a mighty hunter, gone from our neighborhood for several years, has moved back into his house in our block and we are hopeful he will annihilate the rabbit population that infests our place. Just why a rabbit should want to live in town when there are so many wide open places for them in the country, is something I could never figure out and I know of no greater nuisance. Having no Chinese elm, supposedly their first choice of food, they pick on my prunus trilobas, in the winter time, and having these pretty well wrapped with heavy paper this winter, they have turned their attention to the Snow Garland spireas that surround them. Later on, if still living, they will turn their attention to the lilies, which they appear to dearly love to denude of their buds. Like a highly advertised proprietary medicine, they work while we sleep and also while we cuss. Having no gun, the only thing I can do is to throw something hard at them, but they insult my marksmanship by failing even to move. Recently I brot home some poisoned oats that Mr. Dybvig gave me, and which has terminated the careers of many rabbits on his place, but the family refused to allow me to spread it, for fear some bird would beat the rabbits to it. Lead poisoning seems distinctly indicated, in their case.

A pretty post card of the view from Mount Wilson Hotel, Mount Wilson, Calif., recently reached me from Mrs. D. B. Getty, mailed from Long Beach. She wrote: "We are seeing many wonders in this great state, Sequoias and the land of wild flowers were our last treat. Thousands of acres of color, takes a South Dakota persons breath away. Up in the mountains 6000 feet, as far as the snow plow had cleared the roads, our only glimpse of winter. Was over to see Mrs. H. R. Dennis recently". The robins are back in force and many desperate battles take place on our premises, among these doughty little warriors. This morning I witnessed a fierce battle raging between two little females that had evidently become inoculated with the feminist movement idea, in the south, this winter, or had perhaps forgotten that leap year was past. This fight was terminated by a handsome male, who separated the combatants and flew off with one of them. Another robin appeared with a broken wing and had Mrs. Getty been in town, her bird hospital would have surely received another patient today.

Mr. John T. Bregger of Waynesboro, Pa., has arranged a very interesting tour of the fruit districts of the west, for the American Pomological Society members and all other fruit minded people, similar to others that have been held, in past years. Starting from St. Louis on July 5th, the tour will lead thru the Kansas, Colorado, and Utah fruit belts, into California. Then north thru California and Oregon, taking in the July 14th to 16th meeting of the Ass'n. of Northwest Horticulturists, Entomologists and Plant Pathologists at Corvallis, then thru Mt. Rainier National park and the fruit districts of Washington and Idaho, returning to St. Louis July 24th. The cost of the trip is estimated at $114. Any of our readers that can make the trip will undoubtedly see much of interest.

FOREST CONDITIONS IN SHELTERBELTS

As Affected by Grazing

Walter H. Paul

By forest conditions is meant the building up of a layer of humus from leaf decay to act as a mulch on the soil, the shading of the ground to prevent the formation of sod, and the growing of such shrubs and plants that naturally grow as an understory in the forest and act as beneficial associates for tree growth.

Trees drop their leaves and as these leaves and small twigs pile up on the ground certain organisms of decay, with the aid of moisture, start to decompose this organic matter. Part of the material is used as food for the organism but other parts are left forming a darker colored matted substance called duff. As decomposition progresses farther this dark substance breaks down further to form humus—the undecayable part of the leaf nitrogen, and other plant foods. The humus mixes with the top soil to make it more porous and thereby increases soil aeration and water absorbing capacity.

The duff layer forms above the surface mineral soil and acts as a mulch over the soil. This layer absorbs large amounts of moisture and prevents evaporation from the soil during periods of hot, windy weather.

The leaf to humus process is continuous throughout the life of any shelterbelt. The leaves continue to fall, change to duff, then to humus and nitrogen and other plant foods. Other leaves pile on top to keep this process in motion.

The trees in a shelterbelt are used by birds for nests and roosting places. In so using these, birds scatter many species of seeds on the surface of the ground. Some of these seeds find favorable conditions and grow while others may not as much as germinate. By this method a large number of various shrubs are seeded into the shelterbelt and thrive. These species are usually able to grow under at least some shade and may consist of chokecherry, Juneberry, black currant, gooseberry, western snow berry and others.

These shrubs are very valuable to stop wind movement through the shelterbelt, less or partial loss of the leaf litter, and decrease the rate of evaporation from the soil by the retarding of the wind and encouraging the formation of a mulch.

The formation of a thrifty upper canopy of tree branches and leaves and an undercanopy of shrubs as well as a layer of litter and humus upon the surface of the ground prevents the formation of a heavy grass sod, and the above conditions also make an ideal natural seed bed for the tree seeds produced in the shelterbelt. Some of this seed germinates, becomes established and grows, possibly very slowly at first because of low light intensity, but nevertheless, helping to stop the movement of the wind and standing ready to fill in any openings made in the upper canopy by the death of an old tree.

Of the various factors that cause the forest conditions not to form or to tear down those already formed, grazing is by far the most important. Grazing packs the soil, makes it less porous and unable to absorb moisture and air as freely as if grazing had not taken place. Trees are robbed of the moisture they should rightfully have and a general unthrifty condition results. The upper canopy does not completely close, or if completely closed, tends to open up when trees die out so the grass seed that has been scattered through the stand by the cattle finds ideal growing conditions.

The cattle browse and trample any shrubs present so as to eliminate them from the stand in a short time after grazing is allowed. In case of a young shelterbelt which is grazed rather than cultivated, shrubs will never have a chance to come in. Without shrubs present the wind gets a clean sweep through the trees taking with it the falling leaves. Duff and humus formation is retarded so consequently less moisture is conserved when available. Evaporation increases because of higher wind movement and lack of a mulch, and snow blows through the trees to pile up in the farm yard rather than in the trees where the moisture is needed.

In summation the negative effects of grazing on the growth of trees in shelterbelts are: (1) Browsing and trampling keeps out shrubs and increases wind movement (2) Duff and humus are lost so evaporation is increased (3) Soil becomes packed and non-porous (4) Encourages the growth of sod by making conditions unfavorable for tree growth.

In order to get away from depending on nature and the birds to seed in shrubs, plans should be made to include an admixture of shade enduring species in the shelterbelt. Such species as chokecherry, Juneberry, black currant, and honeysuckle could be used mixing them in the rows between the larger trees. Since nature is time consuming in its processes, planting of the shrubs in with the trees will start the formation of a two storied shelterbelt at once which is not the case when we must wait for birds to disseminate the seed.

To speed up their experiments in corn improvement, plant breeders are growing a winter crop of corn in greenhouses.—Science News Letter.

A TEST WINTER

By John S. Robertson

The month of February 1936 gave us the coldest and most severe weather that I have ever known, killing most all fruit blossom buds on many of my bearing trees, both plum and apple. Tame plum buds were more affected than apple. It is noticeable that several varieties of the better quality and large sized tame plums are fairly hardy in not having tops killed back by severe cold, but have the blossom buds killed. In some instances a variety is not extra hardy in wood, but is extra hardy in blossom buds.

I have many varieties of tame plums, but will only mention a few that were leaders in bearing last year, and which have stood about the same way in years before. The Tecumseh is not one of first in hardiness as a small tree, but no cold has ever killed its fruit buds with me. It usually bears well, but not to extent that the tree will not bear some each year. Fruit is of good size, light attractive red, good quality, and ripens first of all tame plums I have. This variety is healthy in tree, and much longer lived than most other kinds. The Waneta is fairly hardy in tree and fruit bud, and is naturally a very large plum. With me it usually overbears so the fruits are not all of full size, branches get split down with weight, and tree weakened for bearing each year. This is a valuable kind, but I place the Tecumseh ahead of it. Then I have the Minnesota No. 225 that is a fine upright and strong grower, bearing a good crop again last year. Fruit is large, of good quality, and ripens early. The Cree plum bore well last year. This is not an extra high quality plum, but the tree is healthy and long lived.

I will mention the new Mordena sand cherry hybrid plum that originated just a few years ago in Canada, as being the most promising in extreme hardiness of any in this line that I have ever grown. The wood had made an extra strong growth, bore some last summer, and did not show any effects from the hard winter. Fruit was not much over half size of the Opata, so will most likely only be most attractive for home use, but may be dependable for crossing any other of the sand cherry hybrids that may be grown. We have quite a number of wild plum trees of select sized fruit, spaced, and cultivated, that all bore an extra good crop last year, showing that their fruit buds are extra strong in standing cold. Such fruits sell very well on market in years when the better sized plums do not bear. I might mention here that many stores usually have a supply of the large plums shipped in for sale. Most of such has been picked green, then ripened under cover, looks very well but does not have much attractive flavor.

I will suggest, both to our northern nurserymen and those planting trees to grow fruits, that all apples, pears, and plums, be propagated by grafting or budding onto the most hardy varieties that grow in the north, so that the roots will not be killed out by an extra severe winter that lacks snow cover for protection. Most of our northern nurserymen know about the hardiness of roots for growing their supply of stock onto, but comparatively few customers know enough to prefer getting all plants from an honest dependable home nurseryman, to that of getting them farther south. Most all seeds planted in a general way for seedlings that nurserymen farther south use for propagating onto, are not hardy enough for being dependable in giving long time and best results in hardiness much farther north. Even when a tree root does not entirely kill out, it is better to have selections of the strongest and most thrifty, so as to get best results from the top.

NORTH DAKOTA NEWS LETTER

(Continued from page 51)

similar to ours here, and which I suppose are the ancesters of Dr. Hansen's varieties. Mr. Mitchurin's book contains pictures of himself and Dr. Hansen taken when our South Dakota friend was visiting in Russia.

PRESIDENT'S CORNER

(Continued from page 52)

as not to be seen without a microscope, the cabbage diseased and covered with aphis in the bud leaf. I have never seen clean, healthy, insect free plants from the south, tho they may be on the market. The first roasting ears ever to be shipped to the northern markets, left the Everglades district of Florida March 19th and was of good quality and size. The April 1st Strawberry report for the main producing states, varies considerably, some very poor on account of the drought. The Ozark district will ship less than 500 cars, Kentucky, slightly over 500 cars and Alabama about 526 cars. Tennessee expects to ship about 700 cars but the banner state will be Louisiana with a crop of 3500 carloads, now moving north.

My Garlic stories were reported pretty strong last year and few believed there was such an acreage planted; now it is reported California has again increased its planting 20% over last year, or about 6000 acres. Last year they shipped more than 2,083,000 pounds.

Before 1891, Death Valley, California, was considered practically barren of life; but since then over 500 species of plants and over 100 birds have been found there below sea level.—Science News Letter.

BEEKEEPERS' NEWS NOTES

J. A. Munro

The Summer Meeting. Here's hoping we'll see you at the coming meeting of the North Dakota Beekeepers' Association. It is a time when beekeepers can meet one another, renew friendships, and discuss problems in common. Incidentally, the Association has held meetings at various points in North Dakota annually since about 1922. Each year the meetings are attracting more and more beepeepers. With the idea of holding the meeting in a different section of the state each year, it is probable that the coming meeting will be held at a more northern point, since last summer's meeting was held in the southeastern section (at Wahpeton).

Several invitations for a meeting place have already been received and the date of July 15 has been suggested for the meeting, but before deciding on the matter the committee would like to have additional suggestions; so write in and give us your ideas on where and when the meeting should be held; also suggestions for the type of program wanted will be welcomed.

Wintering Results: Few reports have as yet been received on the wintering over of bees, but judging from the appearance of a few apiaries in the nearby vicinity it would seem that colonies came through in better condition that for the previous year. It would appear that the winter loss of colonies locally is close to six per cent.

Spring Care: Remember that the honey which colonies will produce during the coming summer will depend to a large extent on the care which they receive from now until the main honey flow begins. The main object to keep in mind is managing the colonies so that they will build up to maximum strength for the main nectar flow, from sweet clover, which begins about July 1. Colonies that are overly strong before then may have some of their brood and bees removed and given to weak colonies, provided the colonies are free of disease. See that food stores are adequate and there is plenty of room for brood rearing. Colonies which are headed by old or failing queens should be requeened. As soon as the colonies are sufficiently strong and the weather is settled, they may be allowed the full size of hive entrance.

Painting Hives: Most hives are painted to improve their appearance and preserve the wooden parts, but there is a third advantage gained in having hives painted—it protects the colonies to some extent from the heat of the sun if the hives are painted with white or aluminum paint. These colors tend to reflect heat from a surface, while a dark color tends to absorb heat.

Now for a short-cut method of planting hives used by Mr. N. E. Ellingson, local beekeeper. Instead of applying the paint with a brush as is the usual way, he simply dips the outer parts of hive bodies, and other exposed wooden surfaces, into a flat-bottomed, shallow pan containing about one-half inch of paint. Then the hive body, bottom board, or other hive part is placed over a long shallow pan (long enough to hold eight hive bodies) to collect the surplus paint which drips away. The pan has one open end and is sloped so that the drippings are conveyed to the dipping pan, with the result that no paint is wasted. The job is done in much less time than is required by the usual brushing method.

A Shelterbelt: If you are keeping your apiary in the same location each year and it is unprotected from winds, you cannot start too soon to plant a shelterbelt of trees. It is remarkable how quickly these trees grow up and afford the hives real protection from the prevailing winds during the cold portions of the year. Two years ago we planted 50 evergreens, consisting of Black Hills spruce and ponderosa pine, in alternating rows, as a shelterbelt for the Experiment Station apiary. Although growing conditions have been severe, not a single tree has been lost. The trees were watered from time to time during very dry weather. They have become well established and have made very satisfactory growth. In another year or so these trees, together with two hedgerows of native shrubs planted at the time, should furnish all the shelterbelt protection that the apiary will need.

Eat More Honey: This doesn't apply to beekeepers because we believe that they are eating their fair share of "nature's best sweet." The general public, however, could do a lot better, and probably would, if they just had honey called to their attention more often and more effectively. Just think of it, the per capita consumption of honey is only about 1½ pounds while that of cane and beet sugar is more than 100 pounds. This is quite a reversal of conditions when we consider that in olden times honey was practically the only form of concentrated sweet food obtainable. Probably the featuring of bee and honey exhibits in store windows, from time to time, in local communities is as good a way as any to call honey to the attention of consumers. At least that was a suggestion passed on to this office recently by Mr. M. W. Cousineau, local supply dealer and shipper of honey.

Eight-Frame Hives for Sale: A member writes in that he would like to know of a buyer for a quantity of eight-frame hives and other equipment which he has for sale. If interested, you

(Continued on page 60)

SOME FRUIT OBSERVATIONS

Manitoba Horticultural Association Convention 1937

W. R. Leslie

Sapa and Opata have held up surprisingly well across the prairies during the past two harsh years. Ezapten is suggestive of Sapa, but considerably hardier in the Pembina Hills. It is poor as dessert but good canned.

Cooper, the Compass cherry seedling from the Fargo Station, is too late for most of the Canadian prairies. It is larger than its parent and remarkably tender when cooked, the skin almost melting into the flesh. A problem of pollination is involved with Cooper, Mordena and Mansen. All bloom late. Compass cherry may be effective as a pollenizer.

Dropmore Blue plum, developed by F. L. Skinner, joins McRobert in offering new select native plums of comparatively high quality, productivity and splendid hardiness.

Plums carrying Chinese Apricot plum blood have been in favor. However, seedlings of Tokata have been disappointing in quality with Mr. Norman M. Ross at Indian Head and at the Chipman Experimental Fruit Farm at Charleswood.

Seedlings of Pembina and Ojibwa, and, to a lesser extent, those of Cree continue to show a pleasing percentage of valuable types. Seedlings of Assiniboine are often good but unless the parent be pollinated by Kaga, Hanska or other hybrids, there is small chance of the seedlings being much superior to the parent.

It may be well to have an occasional tree of Surprise plum in the hybrid plum plantation for pollenizing. At Minnesota five are approved as pollenizers: Kaga, Hanska, Surprise, Assiniboine and Compass Cherry.

At the Fargo Station, Waukon apple is especially promising. It suggests the Wealthy but is somewhat earlier. The tree is a good grower and productive. Their No. 103 gooseberry is green when ripe. Pixwell and Abundance are winning acclaim not only in North Dakota but far into the Northwest of the Canadian prairies. Dr. A. F. Yeager has many subsequent crosses which emphasize size and absence of red colour. His No. 900—Abundance x Jumbo, is large, suggesting the European dessert kinds. It is orange when ripe.

An unusual find at Fargo is a wild strawberry of good size and very firm flesh. In the past, softness of flesh has been a drawback of many of our hardiest cultivated varieties. Introducing this firm fleshed wildling to strawberry breeding may contribute much to prairie varieties of the near future.

Dr. Yeager's purple raspberry P. 117 conveys encouragement to growers of cane fruits in the manner it holds up against winter cold and summer heat and disease.

Minnesota have named apple Minn. 423—Beacon, and plum Minn. 83—Ember. They have apparently changed in nomenclature from place names to descriptive terms. In addition to Red Lake currants, they have some impressive new seedlings as yet under number such as 70, 69, and 61. They also have a Scandinavian variety that is reputed resistant to some of the worst currant diseases. All these new things are in the Minnesota trial orchard at your Morden Station.

Prof. W. H. Alderman finds the progeny of Peach x Plum always to be peach in constitution and he considers them as "false hybrids". He points out a departure from prairie conditions in orcharding near Duluth where south exposures are considered as especially favourable.

Of the Minnesota grapes, those leading in favour are: 69 - blue; 66 - white; and 45 - red. These are comparatively early, vigorous growers, and of good quality.

Mr. W. P. Baird, of the Mandan Station, finds, as has been the early experience at Morden, that some sand cherries are considerably selffruitful. None of the hardy plums seem to be fruitful to their own pollen.

As to crab apples: Florence is the leader under North Dakota conditions. There Dolgo is esteemed for jelly. Virginia is considered valuable for top-working. The fruit is used for canning, but is not considered a jelly crab, being very light in pectin content. Under Manitoba conditions Hibernal has been used considerably for top-working, but owing to injury to the trunks last season, the trend is towards the use of crab apple trees. At present Virginia, Beauty, Olga and Garnet crabs are under comparison. The last named was developed by Mr. W. J. Boughen of Valley River and is remarkable for its wide-spread crotches. Olga if allowed to fruit heavily will not put on wood growth rapidly but when all main scaffold branches are worked over, wood accretion seems satisfactory. Beauty is a vigorous grower and has strong U-shaped crotches. Other crabs are also being used for working over to larger apples. It is important to secure trees which are resistant to fire-blight.

In the north, Osman and Columbia continue in favour for reliable crabs. Bedford has some merits over both of these. In north central Saskatchewan it does not always ripen fully before frost. Rosthern seedlings 2, 3, and 8, have

proven very hardy. Scott No. 1 is about 50 per cent larger than Osman, pleasing to eat out of hand, and is doing well in western Saskatchewan. Olga and Amur are less hardy than Osman but considerably hardier than the Dolgo in the north. Robin is popular for canning.

At Saskatoon, Columbia is the one crab that has been fully free of blight. Magnus and Adam also do well there.

Plums generally hardy in central Saskatchewan include Assiniboine, Olson, Mammoth, Dandy and Wilson River.

Dr. Seagar Wheeler, Rosthern, has many hundreds of new plum and sand cherry seedlings. Among these new things of interest are the following sand cherries: Advance, early, large, and mild; Jumbo, large; an early yellow, of mlid flavour; X036, decidedly sweet; Champa seedling C34, large and early. Champa and Ruby seedlings offer some good selections.

Mr. F. L. Skinner, Dropmore, has a number of novel seedlings of Russian almonds. Their characters suggest Prinsepia, Ussurian cherry, and plum as pollen parents. These natural hybrids indicate new possibilities in hardy hybrid fruits.

Mr. David Tait of Carterton, St. Joseph Island near the Soo, Ontario, is known widely for his pear varieties. A visit there in late August showed a good crop of fruit. Miney pear, an Ottawa production, is considered extra good. Patten pear does well but does not ripen until October. Patten 1215 is somewhat earlier and a good dessert pear. He has a promising red apple found growing as a seedling in the woods. It suggests the Lowland raspberry but is superior in colour and in some other important features. Mr. Tait likes the Sugar crab. Iowa 533 apple does well at Carterton. The Koslov plum is a useful stock for domestica plums such as Mount Royal. Kriken, the Swedish damson, bears heavily and is useful for jam and as dessert. Mr. Tait has had apple and pear nursery stock stored for two winters in a storage cellar and grow well after this long dormancy.

From your Morden Experimental Station, only a few observations are here given. Superior plum is somewhat tender. Ember is too late for most seasons here. La Crescent does not appear to withstand drought well. Fiebing looks hardy and useful. St. Anthony cherry is not of high quality but appears to be a useful bridge in carrying in blood of widely related stone fruits. Mina and Mordel are fruitful plums. With Mordena and Mansan the problem is reliable pollenizers.

There is much variety in Nanking cherry populations as to hardiness, size of fruit, and habit of bush. The Ussurian cherry remains an annual cropper.

Brooks sand cherry bears each year its large fruits. Canned it is less bright in colour, less rich in flavour and tougher in the skin than Manmoor. Both are good bushes, upright in habit, and excellent in hardiness. There are three new Morden seedling large sand cherries; one is considerably larger than Brooks and firmer in the flesh. Canned it is unequal to the ¾ inch Manmoor.

(Continued next month)

PLANT HORMONES

(Continued from page 53)

of treatment in solution the cuttings are handled in the customary way, either placed in rooting media or planted directly in soil. Many species of plants have been tested with growth substances to determine the possibilities of the chemicals for commercial propagation of plants. To convince those who have had experience that the hormone-like substances have root-inducing power it will suffice to mention a few difficult types which have been successfully propagated from cuttings treated with water solutions of the compounds: Japanese Maple, Azaleas, blueberry, Clematis, dogwood, hazel nut (filberts),

Daphne, holly, Magnolia, apples, elms, rose and cherry. Most of the tests have been made with leafy cuttings during the summer. Taxus and other evergreens were successfully handled during both summer and winter months. In a few cases dormant, leafless cuttings of peach, poplars, hydrangeas, privets, hibiscus, and grapes have been induced to root while the controls treated with only water did not. It appears that when the best concentration and treatment are known both hard and softwood cuttings can be rooted any time of the year. It is believed, also, that since larger and more efficient root systems can be induced this new method of propagation offers new possibilities in the establishment and growth of plants on their own roots. It is not assumed that grafting will be discontinued but some varieties, now grafted, might well be on their own roots if cuttings of these species can be induced to develop an adequate root system. Regardless however, of practical applications which might finally be made the results of investigations with hormone-like chemical compounds provide a better basis for understanding the physiology of growth and development of plants. Amateurs and experienced growers will find a new outlet for their energies and interests when they learn about this new field of activities which give a better insight into the secrets of nature.

BEEKEEPERS' NOTES

(Continued from page 57)

might write this office and we will be glad to forward your inquiry. Such equipment must bear a certificate of inspection before being offered for sale.

Subscription to Bee Journals: A rate of 50 cents per year has been secured on the Beekeepers' Item for members. The same rate also applies on the two other journals—American Bee Journal and Gleanings in Bee Culture. If you want any one or all of the magazines at this rate, kindly enclose the proper amount when forwarding your $1.00 dues to this office.

THE BOBOLINK

(Continued from page 50)

springtime. By mid-summer he falls silent and utters only a nasal "chink,' such as one might hear from a very sober redwing. If the bird's character was partly established in New England, it was completed in the Carolina's. Leaving their nesting ground early in late July, they flocked to the marshes to feed upon the wild rice and were known as "reed birds." Moving farther southward, they invaded the rice fields where by their large numbers they caused extensive damage to the crop. It was very convenient for them to fatten there for the long flight from Florida to South America, and they became a table delicacy like the ortolan of Europe. In the north no complaint could be made against their habits, for the birds were scattered over a wide expanse of territory and fed almost entirely upon injurious insects, such as grasshoppers, cutworms and other caterpillars.

Mark Catesby writing about 1725, insisted that there were only females in the great flocks of "rice birds". Thinking they were merely in imperfect plumage, he dissected many and still failed to recognize males. Alexander Wilson, some seventy five years later, explained the mystery as due to the difficulty in distinguishing the sex organs at that season. The confusion would have been natural enough on external appearance for the plumage of the bobolink is scarcely less remarkable than its habits. The latter part of July the male acquires a new plumage very like that of the female and young. He appears then as merely a large sparrow with a brownish-streaked back and yellowish breast. Before leaving their winter home they change again, but the gay spring plumage is at first concealed by gray or yellowish tips which wear away during the migration.